

45. The display apparatus as claimed in Claim 32,  
wherein at least one of said first electrode and second  
electrode comprises an electrode group divided into  
strips, when both of said first electrode and second  
5 electrode comprise electrode groups divided into  
strips, said plurality of strip-formed electrodes  
constituting said first electrode and said plurality  
of strip-formed electrodes constituting said second  
electrodes are disposed to be perpendicular to each  
10 other.

46. The display apparatus as claimed in Claim 33,  
wherein at least one of said first electrode and second  
electrode comprises an electrode group divided into  
strips, when both of said first electrode and second  
15 electrode comprise electrode groups divided into  
strips, said plurality of strip-formed electrodes  
constituting said first electrode and said plurality  
of strip-formed electrodes constituting said second  
electrodes are disposed to be perpendicular to each  
20 other.

47. The display apparatus as claimed in Claim 34,  
wherein at least one of said first electrode and second  
25 electrode comprises an electrode group divided into  
strips, when both of said first electrode and second

electrode comprise electrode groups divided into strips, said plurality of strip-formed electrodes constituting said first electrode and said plurality of strip-formed electrodes constituting said second electrodes are disposed to be perpendicular to each other.

48. The display apparatus as claimed in Claim 35, wherein at least one of said first electrode and second electrode comprises an electrode group divided into strips, when both of said first electrode and second electrode comprise electrode groups divided into strips, said plurality of strip-formed electrodes constituting said first electrode and said plurality of strip-formed electrodes constituting said second electrodes are disposed to be perpendicular to each other.

49. The display apparatus as claimed in Claim 36, wherein at least one of said first electrode and second electrode comprises an electrode group divided into strips, when both of said first electrode and second electrode comprise electrode groups divided into strips, said plurality of strip-formed electrodes constituting said first electrode and said plurality of strip-formed electrodes constituting said second

electrodes are disposed to be perpendicular to each other.

50. The display apparatus as claimed in Claim 37,  
5 wherein at least one of said first electrode and second  
electrode comprises an electrode group divided into  
strips, when both of said first electrode and second  
electrode comprise electrode groups divided into  
strips, said plurality of strip-formed electrodes  
10 constituting said first electrode and said plurality  
of strip-formed electrodes constituting said second  
electrodes are disposed to be perpendicular to each  
other.
- 15 51. The display apparatus as claimed in Claim 44,  
wherein at least one of said first electrode and second  
electrode comprises an electrode group divided into  
strips, when both of said first electrode and second  
electrode comprise electrode groups divided into  
20 strips, said plurality of strip-formed electrodes  
constituting said first electrode and said plurality  
of strip-formed electrodes constituting said second  
electrodes are disposed to be perpendicular to each  
other.

52. The display apparatus as claimed in Claim 32,  
wherein at least one of said first electrode and second  
electrode is divided into display pixel units, and each  
of said divided display pixel units has a switching  
5 device.

53. The display apparatus as claimed in Claim 33,  
wherein at least one of said first electrode and second  
electrode is divided into display pixel units, and each  
10 of said divided display pixel units has a switching  
device.

54. The display apparatus as claimed in Claim 34,  
wherein at least one of said first electrode and second  
15 electrode is divided into display pixel units, and each  
of said divided display pixel units has a switching  
device.

55. The display apparatus as claimed in Claim 35,  
20 wherein at least one of said first electrode and second  
electrode is divided into display pixel units, and each  
of said divided display pixel units has a switching  
device.

25 56. The display apparatus as claimed in Claim 36,  
wherein at least one of said first electrode and second

electrode is divided into display pixel units, and each of said divided display pixel units has a switching device.

5 57. The display apparatus as claimed in Claim 37, wherein at least one of said first electrode and second electrode is divided into display pixel units, and each of said divided display pixel units has a switching device.

10

58. The display apparatus as claimed in Claim 44, wherein at least one of said first electrode and second electrode is divided into display pixel units, and each of said divided display pixel units has a switching device.

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59. A display apparatus comprising an optical device and a illumination means for applying light to said optical device;

20       said optical device having an end surface for incident light from said illumination means, a light transmissive plate-shaped light guide for guiding incident light, an optical control layer provided on a lower surface of said plate-shaped light guide, an  
25       electrode having periodic electrodes with a periodic structure provided on a lower surface of said optical

control layer for inducing a fine periodic structure for light diffraction in said optical control layer, and a substrate provided on a lower surface of said electrode having periodic electrodes disposed in  
5 alternation.

wherein said optical control layer changes in refractive index or absorptivity or scattering degree by an electric field applied by said periodic electrodes disposed in alternation.

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60. The display apparatus as claimed in Claim 59, wherein said electrode having periodic electrodes disposed in alternation is provided for each of display pixel units, and each of said display pixel units has  
15 a switching device.

61. A display apparatus comprising an optical device and a illumination means for applying light to said optical device;

20       said optical device having an end surface for incident light from said illumination means, a light transmissive plate-shaped light guide for guiding incident light, an optical control layer provided on a lower surface of said plate-shaped light guide  
25 through a transparent electrode provided as a first electrode, a second electrode provided on a lower

surface of said optical control layer and comprising  
an electrode divided into a plurality of units, and  
a plurality of third electrodes corresponding one to  
one to each of said plurality of divided second  
5 electrodes and penetrating through said substrate,  
wherein said optical control layer changes in  
refractive index or absorptivity or scattering degree  
or diffraction ability by an electric field applied  
by said first electrode and said second electrode,  
10 each of said plurality of third electrodes has a  
first end part connecting to said second electrode and  
a second end part exposed to a surface opposite to said  
second electrode side of said substrate, and said  
respective electrodes are capable of being applied  
15 with a voltage from said substrate side discretely or  
dividedly in an optional number of groups.

62. A display apparatus comprising an optical device  
and a illumination means for applying light to said  
20 optical device;

said optical device having an end surface for  
incident light from said illumination means, a light  
transmissive plate-shaped light guide for guiding  
incident light, a first stacked body integrated with  
25 an optical control layer provided on a lower surface  
of said plate-shaped light guide through a transparent

electrode provided as a first electrode, and a second stacked body integrated with each of substrate divided into a plurality of units,

wherein said second stacked body corresponds one  
5 to one to each of said second electrode divided into a plurality of units and a substrate provided on a lower surface of said second electrode and said plurality of divided second electrodes, has a plurality of third electrodes penetrating through said substrate, and  
10 arranged on a lower surface of said optical control layer,

said optical control layer changes in refractive index or absorptivity or scattering degree or diffraction ability by an electric field applied by  
15 said first electrode and said second electrode,

each of said plurality of third electrodes has a first end part connecting to said second electrode and a second end part exposed to a surface opposite to said second electrode side of said substrate, and said  
20 respective electrodes are capable of being applied with a voltage from said substrate side discretely or dividedly in an optional number of groups.

63. The display apparatus as claimed in Claim 32,  
25 wherein said illumination means has at least a red light source, a blue light source, and a green light

source, and further comprising means for successively switching said red light source, blue light source and green light source in synchronization with display image.

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64. The display apparatus as claimed in Claim 33, wherein said illumination means has at least a red light source, a blue light source, and a green light source, and further comprising means for successively 10 switching said red light source, blue light source and green light source in synchronization with display image.

65. The display apparatus as claimed in Claim 34, 15 wherein said illumination means has at least a red light source, a blue light source, and a green light source, and further comprising means for successively switching said red light source, blue light source and green light source in synchronization with display 20 image.

66. The display apparatus as claimed in Claim 35, wherein said illumination means has at least a red light source, a blue light source, and a green light source, and further comprising means for successively 25 switching said red light source, blue light source and

green light source in synchronization with display image.

67. The display apparatus as claimed in Claim 36,  
5 wherein said illumination means has at least a red  
light source, a blue light source, and a green light  
source, and further comprising means for successively  
switching said red light source, blue light source and  
green light source in synchronization with display  
10 image.

68. The display apparatus as claimed in Claim 37,  
wherein said illumination means has at least a red  
light source, a blue light source, and a green light  
15 source, and further comprising means for successively  
switching said red light source, blue light source and  
green light source in synchronization with display  
image.

20 69. The display apparatus as claimed in Claim 44,  
wherein said illumination means has at least a red  
light source, a blue light source, and a green light  
source, and further comprising means for successively  
switching said red light source, blue light source and  
25 green light source in synchronization with display  
image.

70. The display apparatus as claimed in Claim 59,  
wherein said illumination means has at least a red  
light source, a blue light source, and a green light  
5 source, and further comprising means for successively  
switching said red light source, blue light source and  
green light source in synchronization with display  
image.

10 71. The display apparatus as claimed in Claim 60,  
wherein said illumination means has at least a red  
light source, a blue light source, and a green light  
source, and further comprising means for successively  
switching said red light source, blue light source and  
15 green light source in synchronization with display  
image.

72. The display apparatus as claimed in Claim 61,  
wherein said illumination means has at least a red  
20 light source, a blue light source, and a green light  
source, and further comprising means for successively  
switching said red light source, blue light source and  
green light source in synchronization with display  
image.

73. The display apparatus as claimed in Claim 62,  
wherein said illumination means has at least a red  
light source, a blue light source, and a green light  
source, and further comprising means for successively  
5 switching said red light source, blue light source and  
green light source in synchronization with display  
image.

74. An optical device comprising a light transmissive  
10 plate-shaped light guide for guiding light incident  
from an end surface, an optical control layer provided  
on a lower surface of said plate-shaped light guide  
through a transparent electrode provided as a first  
electrode, a reflection film provided on a lower  
15 surface of said optical control layer, a second  
electrode provided on a lower surface of said  
reflection film, and a substrate provided on a lower  
surface of said second electrode,

wherein said optical control layer changes in  
20 scattering degree or diffraction efficiency by an  
electric field applied by said first electrode and said  
second electrode,

75. The optical device as claimed in Claim 74, further  
25 comprising a light absorption film disposed between  
said reflection film and said second electrode.

76. An optical device comprising a light transmissive plate-shaped light guide for guiding light incident from an end surface, an optical control layer provided on a lower surface of said light guide through a transparent electrode provided as a first electrode, and a transparent electrode provided as a second electrode provided on a lower surface of said optical control layer,
- 10       wherein said optical control layer changes in scattering degree or diffraction efficiency by an electric field applied by said first electrode and said second electrode.
- 15       77. The optical device as claimed in Claim 76, further comprising a light absorption film provided on a lower surface of said reflection film.
78. An optical device comprising a light transmissive plate-shaped light guide for guiding light incident from an end surface, an optical control layer provided on a lower surface of said plate-shaped light guide through a transparent electrode provided as a first electrode, a reflection film provided on a lower surface of said optical control layer, a second electrode provided on a lower surface of said

reflection film, and a substrate provided on a lower surface of said second electrode,

wherein at least one of said first electrode and said second electrode has

- 5 a periodic structure for inducing a fine periodic structure for light diffraction in said optical control layer, and

10 said optical control layer changes in refractive index or scattering degree or absorbance by an electric field applied by said first electrode and said second electrode.

79. The optical device as claimed in Claim 78, further comprising a light absorption film disposed between 15 said reflection film and said second electrode.

80. The optical device as claimed in Claim 74 or 75, wherein at least one of said first electrode and said second electrode comprises an electrode group divided 20 into strips, when both of said first electrode and said second electrode comprise electrode groups divided into strips, said plurality of strip-formed electrodes constituting said first electrode and said plurality of strip-formed electrodes constituting said second 25 electrodes are disposed to be perpendicular to each other.

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81. The optical device as claimed in Claim 76 or 77,  
wherein at least one of said first electrode and said  
second electrode comprises an electrode group divided  
5 into strips, when both of said first electrode and said  
second electrode comprise electrode groups divided  
into strips, said plurality of strip-formed electrodes  
constituting said first electrode and said plurality  
of strip-formed electrodes constituting said second  
10 electrodes are disposed to be perpendicular to each  
other.

82. The optical device as claimed in Claim 78 or 79,  
wherein at least one of said first electrode and said  
15 second electrode comprises an electrode group divided  
into strips, when both of said first electrode and said  
second electrode comprise electrode groups divided  
into strips, said plurality of strip-formed electrodes  
constituting said first electrode and said plurality  
of strip-formed electrodes constituting said second  
20 electrodes are disposed to be perpendicular to each  
other.

83. The optical device as claimed in Claim 74 or 75,  
25 wherein at least one of said first electrode and said  
second electrode is divided into display pixel units,

and each of said divided display pixel units has a switching device.

84. The optical device as claimed in Claim 76 or 77,  
5 wherein at least one of said first electrode and said second electrode is divided into display pixel units, and each of said divided display pixel units has a switching device.

10 85. The optical device as claimed in Claim 78 or 79, wherein at least one of said first electrode and said second electrode is divided into display pixel units, and each of said divided display pixel units has a switching device.

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86. An optical device comprising a light transmissive plate-shaped light guide for guiding light incident from an end surface, an optical control layer provided on a lower surface of said plate-shaped light guide,  
20 a reflection film provided on a lower surface of said optical control layer, an electrode comprising periodic electrodes having periodic structures disposed in alternation and provided on a lower surface of said reflection film for inducing a fine periodic structure for light diffraction in said optical control layer, and a substrate provided on a lower

surface of said electrode having periodic electrodes disposed in alternation.

wherein said optical control layer changes in refractive index or scattering degree or absorbance  
5 by an electric field applied by said electrode having periodic electrodes disposed in alternation.

87. The optical device as claimed in Claim 86, further comprising a light absorption film disposed between  
10 said reflection film and said electrode having periodic electrodes disposed in alternation.

88. The optical device as claimed in Claim 86 or 87,  
wherein said electrode having periodic electrodes  
15 disposed in alternation is provided for each of display pixel units, and each of said divided display pixel units has a switching device.

89. An optical device comprising: a light transmissive plate-shaped light guide for guiding light incident from an end surface; an optical control layer provided on a lower surface of said plate-shaped light guide through a transparent electrode provided as a first electrode; a reflection film provided on a lower surface of said optical control layer, a second electrode divided into a plurality of electrodes  
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provided on a lower surface of said reflection film,  
a substrate provided on a lower surface of said second  
electrode, and a plurality of third electrodes one to  
one corresponding to each of said plurality of divided  
5 second electrodes and penetrating through said  
substrate,

wherein said optical control layer changes in  
refractive index or absorptivity or scattering degree  
or diffraction ability by an electric field applied  
10 by said first electrode and said second electrode,  
each of said plurality of third electrodes has a  
first end part connecting to said second electrode and  
a second end part exposed to a surface opposite to said  
second electrode side surface of said substrate, and  
15 said respective electrodes are capable of being  
applied with a voltage from said substrate side  
discretely or dividedly in an optional number of  
groups.

20 90. The optical device as claimed in Claim 89, further  
comprising a light absorption film disposed between  
said reflection film and said second electrode.

91. An optical device comprising: a light  
25 transmissive plate-shaped light guide for guiding  
light incident from an end surface; a first stacked

body integrated with an optical control layer provided  
on a lower surface of said plate-shaped light guide  
through a transparent electrode provided as a first  
electrode, and a second stacked body integrated with  
5 each of substrate divided into a plurality of units,  
wherein said second stacked body has a reflection  
film, a second electrode divided into a plurality of  
units, a substrate provided on a lower surface of said  
second electrode, and a plurality of third electrodes  
10 corresponding one to one to each of said plurality of  
second electrode, penetrating through said substrate,  
and arranged on a lower surface of said optical control  
layer,

15 said optical control layer changes in refractive  
index or absorptivity or scattering degree or  
diffraction ability by an electric field applied by  
said first electrode and said second electrode,

each of said plurality of third electrodes has a  
first end part connecting to said second electrode and  
20 a second end part exposed to a surface opposite to said  
second electrode side of said substrate, and said  
respective electrodes are capable of being applied  
with a voltage from said substrate side discretely or  
dividedly in an optional number of groups..

92. The optical device as claimed in Claim 91, further comprising a light absorption film disposed between said reflection film and said second electrode.
- 5      93. The optical device as claimed in Claim 74 or 75, wherein said optical control layer is made of a reverse mode polymer dispersed liquid crystal which is constructed by dispersing a low molecular-weight liquid crystal in a liquid crystalline polymer, and
- 10     said optical control layer becomes a uniform birefringent thin film when no electric field is applied and becomes a scattering state when an electric field is applied.
- 15     94. The optical device as claimed in Claim 76 or 77, wherein said optical control layer is made of a reverse mode polymer dispersed liquid crystal which is constructed by dispersing a low molecular-weight liquid crystal in a liquid crystalline polymer, and
- 20     said optical control layer becomes a uniform birefringent thin film when no electric field is applied and becomes a scattering state when an electric field is applied.
- 25     95. The optical device as claimed in Claim 78 or 79, wherein said optical control layer is made of a reverse

mode polymer dispersed liquid crystal which is  
constructed by dispersing a low molecular-weight  
liquid crystal in a liquid crystalline polymer, and  
said optical control layer becomes a uniform  
5 birefringent thin film when no electric field is  
applied and becomes a scattering state when an electric  
field is applied.

96. The optical device as claimed in Claim 86 or 87,  
10 wherein said optical control layer is made of a reverse  
mode polymer dispersed liquid crystal which is  
constructed by dispersing a low molecular-weight  
liquid crystal in a liquid crystalline polymer, and  
said optical control layer becomes a uniform  
15 birefringent thin film when no electric field is  
applied and becomes a scattering state when an electric  
field is applied.

97. The optical device as claimed in Claim 89 or 90,  
20 wherein said optical control layer is made of a reverse  
mode polymer dispersed liquid crystal which is  
constructed by dispersing a low molecular-weight  
liquid crystal in a liquid crystalline polymer, and  
said optical control layer becomes a uniform  
25 birefringent thin film when no electric field is

applied and becomes a scattering state when an electric field is applied.

98. The optical device as claimed in Claim 91 or 92,  
5 wherein said optical control layer is made of a reverse mode polymer dispersed liquid crystal which is constructed by dispersing a low molecular-weight liquid crystal in a liquid crystalline polymer, and said optical control layer becomes a uniform  
10 birefringent thin film when no electric field is applied and becomes a scattering state when an electric field is applied.

99. The optical device as claimed in Claim 74 or 75,  
15 wherein said optical control layer comprises one of constructions of liquid crystal particles dispersed in a polymer resin area, a polymer dispersed liquid crystal comprising polymer resin particles dispersed in a liquid crystal, and a polymer dispersed liquid  
20 crystal in which respective polymer resin area and liquid crystal area form continuous areas.

100. The optical device as claimed in Claim 76 or 77,  
wherein said optical control layer comprises one of  
25 constructions of liquid crystal particles dispersed in a polymer resin area, a polymer dispersed liquid

crystal comprising polymer resin particles dispersed in a liquid crystal, and a polymer dispersed liquid crystal in which respective polymer resin area and liquid crystal area form continuous areas.

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101. The optical device as claimed in Claim 78 or 79, wherein said optical control layer comprises one of constructions of liquid crystal particles dispersed in a polymer resin area, a polymer dispersed liquid

10 crystal comprising polymer resin particles dispersed in a liquid crystal, and a polymer dispersed liquid crystal in which respective polymer resin area and liquid crystal area form continuous areas.

15 102. The optical device as claimed in Claim 86 or 87, wherein said optical control layer comprises one of constructions of liquid crystal particles dispersed in a polymer resin area, a polymer dispersed liquid crystal comprising polymer resin particles dispersed in a liquid crystal, and a polymer dispersed liquid crystal in which respective polymer resin area and liquid crystal area form continuous areas.

20 103. The optical device as claimed in Claim 89 or 90, wherein said optical control layer comprises one of constructions of liquid crystal particles dispersed

in a polymer resin area, a polymer dispersed liquid crystal comprising polymer resin particles dispersed in a liquid crystal, and a polymer dispersed liquid crystal in which respective polymer resin area and  
5 liquid crystal area form continuous areas.

104. The optical device as claimed in Claim 91 or 92, wherein said optical control layer comprises one of constructions of liquid crystal particles dispersed  
10 in a polymer resin area, a polymer dispersed liquid crystal comprising polymer resin particles dispersed in a liquid crystal, and a polymer dispersed liquid crystal in which respective polymer resin area and liquid crystal area form continuous areas.

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105. The optical device as claimed in Claim 74 or 75, wherein said optical control layer comprises a holographic polymer dispersed liquid crystal of liquid crystal area having a structure periodically  
20 distributed in the form of a diffraction grating.

106. The optical device as claimed in Claim 76 or 77, wherein said optical control layer comprises a holographic polymer dispersed liquid crystal of liquid crystal area having a structure periodically  
25 distributed in the form of a diffraction grating.

107. The optical device as claimed in Claim 78 or 79,  
wherein said optical control layer comprises a  
holographic polymer dispersed liquid crystal of liquid  
5 crystal area having a structure periodically  
distributed in the form of a diffraction grating.
108. The optical device as claimed in Claim 86 or 87,  
wherein said optical control layer comprises a  
10 holographic polymer dispersed liquid crystal of liquid  
crystal area having a structure periodically  
distributed in the form of a diffraction grating.
109. The optical device as claimed in Claim 89 or 90,  
15 wherein said optical control layer comprises a  
holographic polymer dispersed liquid crystal of liquid  
crystal area having a structure periodically  
distributed in the form of a diffraction grating.
- 20 110. The optical device as claimed in Claim 91 or 92,  
wherein said optical control layer comprises a  
holographic polymer dispersed liquid crystal of liquid  
crystal area having a structure periodically  
distributed in the form of a diffraction grating.

111. The optical device as claimed in Claim 74 or 75,  
wherein said reflection film comprises one selected  
from:

a dielectric multilayered film; and  
5 a film lower in refractive index than said light  
guide.

112. The optical device as claimed in Claim 76 or 77,  
wherein said reflection film comprises one selected  
10 from:

a dielectric multilayered film; and  
a film lower in refractive index than said light  
guide.

15 113. The optical device as claimed in Claim 78 or 79,  
wherein said reflection film comprises one selected  
from:

a dielectric multilayered film; and  
a film lower in refractive index than said light  
20 guide.

114. The optical device as claimed in Claim 86 or 87,  
wherein said reflection film comprises one selected  
from:

25 a dielectric multilayered film; and

a film lower in refractive index than said light guide.

115. The optical device as claimed in Claim 89 or 90,  
5 wherein said reflection film comprises one selected from:

a dielectric multilayered film; and  
a film lower in refractive index than said light guide.

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116. The optical device as claimed in Claim 91 or 92,  
wherein said reflection film comprises one selected  
from:

a dielectric multilayered film; and  
a film lower in refractive index than said light  
guide.

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117. A display apparatus comprising an optical device  
and a illumination means for applying light to said  
20 optical device,

said optical device having an end surface for  
incident light from said illumination means, a light  
transmissive plate-shaped light guide for guiding  
incident light, an optical control layer provided on  
25 a lower surface of said light guide through a  
transparent electrode provided as a first electrode,

a reflection film provided on a lower surface of said optical control layer, a second electrode provided on a lower surface of said reflection film, and a substrate provided on a lower surface of said second electrode,

wherein said optical control layer changes in scattering degree or diffraction efficiency by an electric field applied by said first electrode and said second electrode.

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118. The display apparatus as claimed in Claim 117, further comprising a light absorption film disposed between said reflection film and said second electrode.

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119. A display apparatus comprising an optical device and a illumination means for applying light to said optical device,

said optical device having an end surface for incident light from said illumination means, a light transmissive plate-shaped light guide for guiding incident light, an optical control layer provided on a lower surface of said plate-shaped light guide through a transparent electrode provided as a first electrode, a reflection film provided on a lower surface of said optical control layer through a

transparent electrode provided as a second electrode, and a substrate provided on a lower surface of said reflection film,

wherein said optical control layer changes in  
5 scattering degree or diffraction efficiency by an electric field applied by said first electrode and said second electrode.

120. The display apparatus as claimed in Claim 119,  
10 further comprising a light absorption film provided on a lower surface of said reflection film.

121. A display apparatus comprising an optical device and a illumination means for applying light to said  
15 optical device,

said optical device having an end surface for incident light from said illumination means, a light transmissive plate-shaped light guide for guiding incident light, an optical control layer provided on  
20 a lower surface of said light guide through a transparent electrode provided as a first electrode, a reflection film provided on a lower surface of said optical control layer, a second electrode provided on a lower surface of said reflection film, and a  
25 substrate provided on a lower surface of said second electrode,

wherein at least one of said first electrode and  
said second electrode has  
a periodic structure for inducing a fine periodic  
structure for light diffraction in said optical  
5 control layer, and

said optical control layer changes in refractive  
index or scattering degree or absorbance by an electric  
field applied by said first electrode and said second  
electrode.

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122. The display apparatus as claimed in Claim 121,  
further comprising a light absorption film disposed  
between said reflection film and said second  
electrode.

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123. The display apparatus as claimed in Claim 117 or  
118, wherein at least one of said first electrode and  
said second electrode comprises an electrode group  
divided into strips, when both of said first electrode  
20 and said second electrode comprise electrode groups  
divided into strips, said plurality of strip-formed  
electrodes constituting said first electrode and said  
plurality of strip-formed electrodes constituting  
said second electrodes are disposed to be  
25 perpendicular to each other.

124. The display apparatus as claimed in Claim 119 or  
120, wherein at least one of said first electrode and  
said second electrode comprises an electrode group  
divided into strips, when both of said first electrode  
5 and said second electrode comprise electrode groups  
divided into strips, said plurality of strip-formed  
electrodes constituting said first electrode and said  
plurality of strip-formed electrodes constituting  
said second electrodes are disposed to be  
10 perpendicular to each other.

125. The display apparatus as claimed in Claim 121 or  
122, wherein at least one of said first electrode and  
said second electrode comprises an electrode group  
15 divided into strips, when both of said first electrode  
and said second electrode comprise electrode groups  
divided into strips, said plurality of strip-formed  
electrodes constituting said first electrode and said  
plurality of strip-formed electrodes constituting  
20 said second electrodes are disposed to be  
perpendicular to each other.

126. The display apparatus as claimed in Claim 117 or  
118, wherein at least one of said first electrode and  
25 said second electrode is divided into display pixel

units, and each of said divided display pixel units has a switching device.

127. The display apparatus as claimed in Claim 119 or  
5       wherein at least one of said first electrode and said second electrode is divided into display pixel units, and each of said divided display pixel units has a switching device.

10     128. The display apparatus as claimed in Claim 121 or  
      122, wherein at least one of said first electrode and said second electrode is divided into display pixel units, and each of said divided display pixel units has a switching device.

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129. A display apparatus comprising an optical device and a illumination means for applying light to said optical device,

      said optical device having an end surface for  
20   incident light from said illumination means, a light transmissive plate-shaped light guide for guiding incident light, an optical control layer provided on a lower surface of said plate-shaped light guide, a reflection film provided on a lower surface of said optical control layer, an electrode comprising  
25   periodic electrodes disposed in alternation having a

periodic structure provided on a lower surface of said reflection film for inducing a fine periodic structure for light diffraction in said optical control layer, and a substrate provided on a lower surface of said electrodes disposed in alternation,

wherein said optical control layer changes in refractive index or scattering degree or absorbance by an electric field applied by said periodic electrodes disposed in alternation.

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130. The display apparatus as claimed in Claim 129, further comprising a light absorption film disposed between said reflection film and said electrode having periodic electrodes disposed in alternation.

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131. The display apparatus as claimed in Claim 129 or 130, wherein said electrode having periodic electrodes disposed in alternation is provided for each of display pixel units, and each of said display pixel units has 20 a switching device.

132. A display apparatus comprising: an optical device, a illumination means for applying light to said optical device,

25 said optical device having an end surface for incident light from said illumination means, a light

transmissive plate-shaped light guide for guiding  
incident light, an optical control layer provided on  
a lower surface of said plate-shaped light guide  
through a transparent electrode provided as a first  
5 electrode, a reflection film provided on a lower  
surface of said optical control layer, a second  
electrode comprising an electrode divided into a  
plurality of units provided on a lower surface of said  
reflection film, a substrate provided on a lower  
10 surface of said second electrode, and a plurality of  
third electrodes corresponding one to one to each of  
said plurality of second electrode, penetrating  
through said substrate,

wherein said optical control layer changes in  
15 refractive index or absorptivity or scattering degree  
or diffraction ability by an electric field applied  
by said first electrode and said second electrode,

each of said plurality of third electrodes has a  
first end part connecting to said second electrode and  
20 a second end part exposed to a surface opposite to said  
second electrode side of said substrate, and said  
respective electrodes are capable of being applied  
with a voltage from said substrate side discretely or  
dividedly in an optional number of groups.

133. The display apparatus as claimed in Claim 132, further comprising a light absorption film disposed between said reflection film and said second electrode.

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134. A display apparatus comprising: an optical device, a illumination means for applying light to said optical device,

10       said optical device having an end surface for incident light from said illumination means, a light transmissive plate-shaped light guide for guiding incident light, a first stacked body integrated with an optical control layer provided on a lower surface of said plate-shaped light guide through a transparent 15       electrode provided as a first electrode, and a second stacked body integrated with each of substrate divided into a plurality of units,

20       wherein said second stacked body has a reflection film, a second electrode divided into a plurality of units provided on a lower surface of said reflection film, a substrate provided on a lower surface of said plurality of divided second electrodes, and a plurality of third electrodes corresponding one to one to each of said plurality of divided second electrodes, 25       penetrating through said substrate, and arranged on a lower surface of said optical control layer.

said optical control layer changes in refractive index or absorptivity or scattering degree or diffraction ability by an electric field applied by said first electrode and said second electrode,

5       each of said plurality of third electrodes has a first end part connecting to said second electrode and a second end part exposed to a surface opposite to said second electrode side of said substrate, and said respective electrodes are capable of being applied  
10      with a voltage from said substrate side discretely or dividedly in an optional number of groups.

135. The display apparatus as claimed in Claim 134,  
further comprising a light absorption film provided  
15      between said reflection film and said second electrode.

136. The display apparatus as claimed in Claim 117 or  
118, wherein said optical control layer is made of a  
20      reverse mode polymer dispersed liquid crystal which  
is constructed by dispersing a low molecular-weight  
liquid crystal in a liquid crystalline polymer, and  
said optical control layer becomes a uniform  
birefringent thin film when no electric field is  
25      applied and becomes a scattering state when an electric  
field is applied.

137. The display apparatus as claimed in Claim 119 or  
120, wherein said optical control layer is made of a  
reverse mode polymer dispersed liquid crystal which  
5 is constructed by dispersing a low molecular-weight  
liquid crystal in a liquid crystalline polymer, and  
said optical control layer becomes a uniform  
birefringent thin film when no electric field is  
applied and becomes a scattering state when an electric  
10 field is applied.

138. The display apparatus as claimed in Claim 121 or  
122, wherein said optical control layer is made of a  
reverse mode polymer dispersed liquid crystal which  
15 is constructed by dispersing a low molecular-weight  
liquid crystal in a liquid crystalline polymer, and  
said optical control layer becomes a uniform  
birefringent thin film when no electric field is  
applied and becomes a scattering state when an electric  
20 field is applied.

139. The display apparatus as claimed in Claim 129 or  
130, wherein said optical control layer is made of a  
reverse mode polymer dispersed liquid crystal which  
25 is constructed by dispersing a low molecular-weight  
liquid crystal in a liquid crystalline polymer, and

said optical control layer becomes a uniform birefringent thin film when no electric field is applied and becomes a scattering state when an electric field is applied.

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140. The display apparatus as claimed in Claim 132 or 133, wherein said optical control layer is made of a reverse mode polymer dispersed liquid crystal which is constructed by dispersing a low molecular-weight 10 liquid crystal in a liquid crystalline polymer, and said optical control layer becomes a uniform birefringent thin film when no electric field is applied and becomes a scattering state when an electric field is applied.

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141. The display apparatus as claimed in Claim 134 or 135, wherein said optical control layer is made of a reverse mode polymer dispersed liquid crystal which is constructed by dispersing a low molecular-weight 20 liquid crystal in a liquid crystalline polymer, and said optical control layer becomes a uniform birefringent thin film when no electric field is applied and becomes a scattering state when an electric field is applied.

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142. The display apparatus as claimed in Claim 117 or  
118, wherein said optical control layer comprises one  
of constructions of liquid crystal particles dispersed  
in a polymer resin area, a polymer dispersed liquid  
5 crystal comprising polymer resin particles dispersed  
in a liquid crystal, and a polymer dispersed liquid  
crystal in which respective polymer resin area and  
liquid crystal area form continuous areas.
- 10 143. The display apparatus as claimed in Claim 119 or  
120, wherein said optical control layer comprises one  
of constructions of liquid crystal particles dispersed  
in a polymer resin area, a polymer dispersed liquid  
crystal comprising polymer resin particles dispersed  
15 in a liquid crystal, and a polymer dispersed liquid  
crystal in which respective polymer resin area and  
liquid crystal area form continuous areas.
144. The display apparatus as claimed in Claim 121 or  
20 122, wherein said optical control layer comprises one  
of constructions of liquid crystal particles dispersed  
in a polymer resin area, a polymer dispersed liquid  
crystal comprising polymer resin particles dispersed  
25 in a liquid crystal, and a polymer dispersed liquid  
crystal in which respective polymer resin area and  
liquid crystal area form continuous areas.

145. The display apparatus as claimed in Claim 129 or  
130, wherein said optical control layer comprises one  
of constructions of liquid crystal particles dispersed  
5 in a polymer resin area, a polymer dispersed liquid  
crystal comprising polymer resin particles dispersed  
in a liquid crystal, and a polymer dispersed liquid  
crystal in which respective polymer resin area and  
liquid crystal area form continuous areas.

10

146. The display apparatus as claimed in Claim 132 or  
133, wherein said optical control layer comprises one  
of constructions of liquid crystal particles dispersed  
in a polymer resin area, a polymer dispersed liquid  
crystal comprising polymer resin particles dispersed  
15 in a liquid crystal, and a polymer dispersed liquid  
crystal in which respective polymer resin area and  
liquid crystal area form continuous areas.

20 147. The display apparatus as claimed in Claim 134 or  
135, wherein said optical control layer comprises one  
of constructions of liquid crystal particles dispersed  
in a polymer resin area, a polymer dispersed liquid  
crystal comprising polymer resin particles dispersed  
25 in a liquid crystal, and a polymer dispersed liquid

crystal in which respective polymer resin area and liquid crystal area form continuous areas.

148. The display apparatus as claimed in Claim 117 or  
5 118, wherein said optical control layer comprises a holographic polymer dispersed liquid crystal of liquid crystal area having a structure periodically distributed in the form of a diffraction grating.

10 149. The display apparatus as claimed in Claim 119 or 120, wherein said optical control layer comprises a holographic polymer dispersed liquid crystal of liquid crystal area having a structure periodically distributed in the form of a diffraction grating.

15 150. The display apparatus as claimed in Claim 121 or 122, wherein said optical control layer comprises a holographic polymer dispersed liquid crystal of liquid crystal area having a structure periodically distributed in the form of a diffraction grating.

20 151. The display apparatus as claimed in Claim 129 or 130, wherein said optical control layer comprises a holographic polymer dispersed liquid crystal of liquid crystal area having a structure periodically distributed in the form of a diffraction grating.

152. The display apparatus as claimed in Claim 132 or  
133, wherein said optical control layer comprises a  
holographic polymer dispersed liquid crystal of liquid  
5 crystal area having a structure periodically  
distributed in the form of a diffraction grating.
153. The display apparatus as claimed in Claim 134 or  
135, wherein said optical control layer comprises a  
10 holographic polymer dispersed liquid crystal of liquid  
crystal area having a structure periodically  
distributed in the form of a diffraction grating.
154. The display apparatus as claimed in Claim 117 or  
15 118, wherein said reflection film comprises a film  
lower in refractive index than a dielectric  
multilayered film or said light guide.
155. The display apparatus as claimed in Claim 119 or  
20 120, wherein said reflection film comprises a film  
lower in refractive index than a dielectric  
multilayered film or said light guide.
156. The display apparatus as claimed in Claim 121 or  
25 122, wherein said reflection film comprises a film

lower in refractive index than a dielectric multilayered film or said light guide.

157. The display apparatus as claimed in Claim 129 or  
5 130, wherein said reflection film comprises a film lower in refractive index than a dielectric multilayered film or said light guide.

158. The display apparatus as claimed in Claim 132 or  
10 133, wherein said reflection film comprises a film lower in refractive index than a dielectric multilayered film or said light guide.

159. The display apparatus as claimed in Claim 134 or  
15 135, wherein said reflection film comprises a film lower in refractive index than a dielectric multilayered film or said light guide.

160. The display apparatus as claimed in Claim 117 or  
20 118, wherein said illumination means has at least a red light source, a blue light source, and a green light source, and further comprising means for successively switching said red light source, blue light source and green light source in synchronization with display  
25 image.

161. The display apparatus as claimed in Claim 119 or  
120, wherein said illumination means has at least a  
red light source, a blue light source, and a green light  
source, and further comprising means for successively  
5 switching said red light source, blue light source and  
green light source in synchronization with display  
image.
162. The display apparatus as claimed in Claim 121 or  
10 122, wherein said illumination means has at least a  
red light source, a blue light source, and a green light  
source, and further comprising means for successively  
switching said red light source, blue light source and  
green light source in synchronization with display  
15 image.
163. The display apparatus as claimed in Claim 129 or  
130, wherein said illumination means has at least a  
red light source, a blue light source, and a green light  
source, and further comprising means for successively  
20 switching said red light source, blue light source and  
green light source in synchronization with display  
image.
- 25 164. The display apparatus as claimed in Claim 132 or  
133, wherein said illumination means has at least a

red light source, a blue light source, and a green light source, and further comprising means for successively switching said red light source, blue light source and green light source in synchronization with display  
5 image.

165. The display apparatus as claimed in Claim 134 or 135, wherein said illumination means has at least a red light source, a blue light source, and a green light source, and further comprising means for successively switching said red light source, blue light source and green light source in synchronization with display  
10 image.